

Stability of Resistance against *Leptosphaeria maculans*

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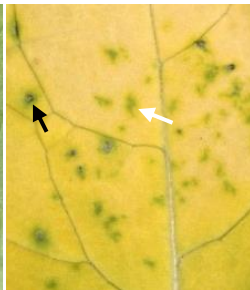
University of Hertfordshire



Gene-for-gene Relationship

	<i>Rlm6</i>	<i>rlm6</i>
<i>AvrLm6</i>	Resistant	Susceptible
<i>avrLm6</i>	Susceptible	Susceptible

Incompatible



Compatible



- Single dominant host resistance gene (*Rlm6*) + corresponding dominant pathogen effector gene (*AvrLm6*) → incompatibility or avirulence
- *L. maculans* enters the host via stomata.
- Inside the leaf, *L. maculans* secretes effectors (*AvrLm6*) to manipulate the host.
- Recognition of effectors by *R* gene products (*Rlm6*) triggers a resistance response.

Receptor-like Protein LepR3

HHpredB

Phyre2



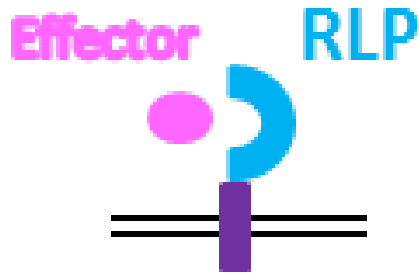
The diagram illustrates the domain structure of the Receptor-like Protein LepR3. It features two vertical double-headed arrows. The upper arrow is labeled 'LRR-domain'. The lower arrow is labeled 'Transmembrane domain, Cytoplasmic tail'. To the right of the lower arrow, there is a horizontal arrow pointing to the text '→ De novo modelling'. The labels 'HHpredB' and 'Phyre2' are positioned on the left and right sides of the diagram, respectively.

LRR-domain

Transmembrane domain,
Cytoplasmic tail

→ *De novo* modelling

Interaction between Rlm4 and AvrLm4



Chromosome A7

18 *R* gene candidates
in 2.75-Mbp region

- The *avrLm4* allele results in a G^{120}/R^{120} substitution.
- *avrLm4* is no longer recognized by Rlm4.
- Is AvrLm4-7 directly recognized by Rlm4?
- Structure of the Cys-rich peptide AvrLm4-7 has been solved.
- Is the effector function of *avrLm4* still intact?

Where is BRMS075?

Aims

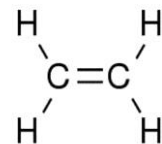
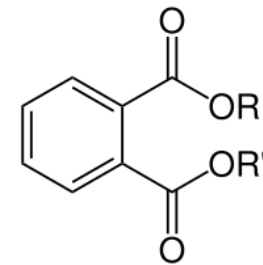
1. Modelling of the receptor-like protein LepR3
→ Docking of the AvrLm4 structure to Rlm4 candidates
2. Temperature sensitivity of *LepR3* resistance
3. Suppression of PAMP-triggered immunity by effectors
→ Oxidative burst (H_2O_2 , $\text{O}_2^{\cdot-}$)
→ Callose production
→ *WRKY* expression

Problems with CE Cabinets



- Chlorosis
- Stunting
- Specific to *Brassica napus*
- Light?
- Mineral nutrition?
- Toxic volatiles (phthalates)?
- Oxidative stress?

- DBP and DIBP inhibit the reducing site of photosystem II.
- Blocks the electron transport chain.



Problems with CE Cabinets



Air sampling at Bayfordbury (neg. control)
Sampling in CE room (shown above)
Sampling inside cabinets in CE room
Sampling in room H300 on College Lane
Sampling in chamber in CP Snow Bldg.

Conviron and Weiss cabinets
Growth assessments continuing

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